

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number
WO 2005/014723 A1

(51) International Patent Classification⁷: C09B 23/02,
C07H 21/00, C07D 209/08

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(21) International Application Number:
PCT/IB2004/051447

(22) International Filing Date: 11 August 2004 (11.08.2004)

(25) Filing Language: Italian

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(26) Publication Language: English

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(30) Priority Data:
PZ2003000002 12 August 2003 (12.08.2003) IT

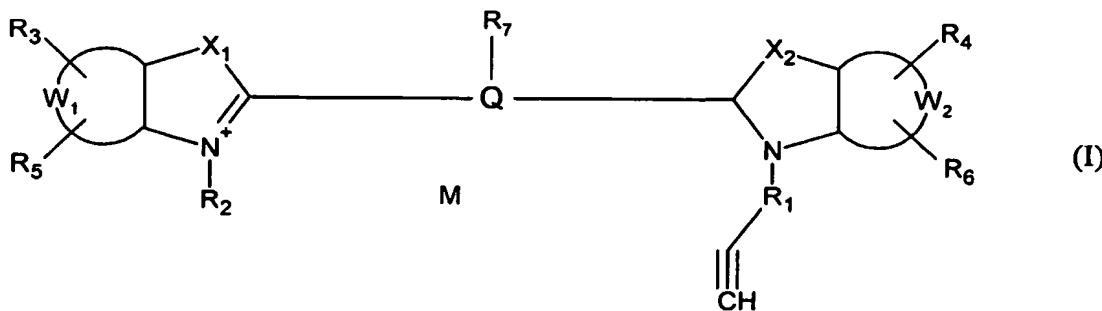
(71) Applicant and
(72) Inventor: CAPUTO, Giuseppe [IT/IT]; Via Principe Tommaso 21, I-10125 Torino (IT).

(74) Agents: GERMINARIO, Claudio et al.; c/o Società Italiana Brevetti S.p.A., Piazza di Pietra 39, I-00186 Roma (IT).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CYANINE-TYPE COMPOUNDS HAVING AN ALKYNYL LINKER ARM



(57) Abstract: The invention relates to cyanine-type fluorescent dyes modified with an alkynyl linker arm of formula (I), suitable for the conjugation of biomolecules, such as for example nucleosides, nucleotides, oligonucleotides, nucleic acids, proteins, peptides, vitamins and hormones. A method and intermediates for the synthesis of the alkynyl cyanines of the invention are also described, as well as alkynyl cyaninebiomolecule conjugates and methods for preparing thereof. The alkynyl cyanines of the invention can be advantageously used as markers for biomolecules or as quenchers.

WO 2005/014723 A1

CORRECTED VERSION

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number
WO 2005/014723 A1

(51) International Patent Classification⁷: C09B 23/02,
C07H 21/00, C07D 209/08

GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(21) International Application Number:
PCT/IB2004/051447

(22) International Filing Date: 11 August 2004 (11.08.2004)

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(25) Filing Language: Italian

Published:

— with international search report

(26) Publication Language: English

(48) Date of publication of this corrected version:

14 April 2005

(30) Priority Data:
PZ2003A000002 12 August 2003 (12.08.2003) IT

(71) Applicant and
(72) Inventor: CAPUTO, Giuseppe [IT/IT]; Via Principe Tommaso 21, I-10125 Torino (IT).

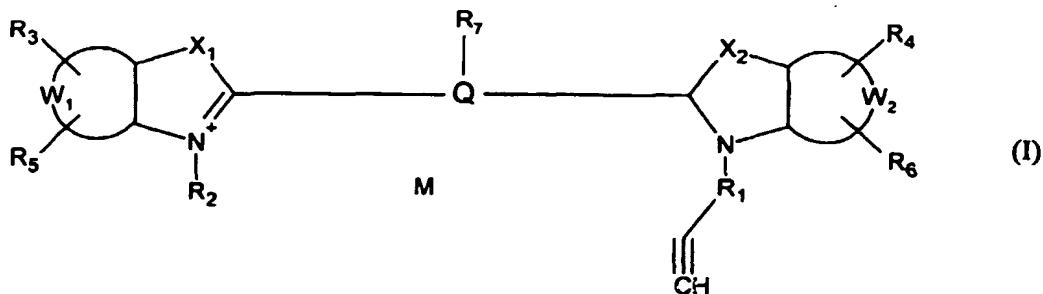
(74) Agents: GERMINARIO, Claudio et al.; c/o Società Italiana Brevetti S.p.A., Piazza di Pietra 39, I-00186 Roma (IT).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,

(15) Information about Correction:
see PCT Gazette No. 15/2005 of 14 April 2005, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CYANIN-TYPE COMPOUNDS HAVING AN ALKYNYL LINKER ARM



(57) Abstract: The invention relates to cyanine-type fluorescent dyes modified with an alkynyl linker arm of formula (I), suitable for the conjugation of biomolecules, such as for example nucleosides, nucleotides, oligonucleotides, nucleic acids, proteins, peptides, vitamins and hormones. A method and intermediates for the synthesis of the alkynyl cyanines of the invention are also described, as well as alkynyl cyaninebiomolecule conjugates and methods for preparing thereof. The alkynyl cyanines of the invention can be advantageously used as markers for biomolecules or as quenchers.